

ATTACHMENT A

DEP7007 Forms (AI, EE, N and V)

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007AI**Administrative Information**

- ☐ Section AI.1: Source Information
☐ Section AI.2: Applicant Information
☐ Section AI.3: Owner Information
☐ Section AI.4: Type of Application
☐ Section AI.5: Other Required Information
☐ Section AI.6: Signature Block
☐ Section AI.7: Notes, Comments, and Explanations

Additional Documentation

☐ Additional Documentation attached

Source Name: Buffalo Trace Distillery, Inc.

KY EIS (AFS) #: 21-073-00009

Permit #: V-12-056

Agency Interest (AI) ID: 1373

Date: 10/4/2019

Section AI.1: Source Information

Physical Location Address:	Street:	<u>113 Great Buffalo Trace</u>		
	City:	<u>Frankfort</u>	County:	<u>Franklin</u>
Mailing Address:	Street or P.O. Box:	<u>Same as physical address</u>		
	City:		State:	
			Zip Code:	<u>40601</u>

Standard Coordinates for Source Physical Location

Longitude: -84.871° E (decimal degrees)
 Latitude: 38.216694° N (decimal degrees)

Primary (NAICS) Category: Distilleries
 Primary NAICS #: 312140

Classification (SIC) Category:

Distilled and Blended Liquors

Primary SIC #:

2085

Briefly discuss the type of business conducted at this site:

The site produces distilled spirits. Grain is delivered, ground, and introduced to mash cookers. The mash is fed to fermenters and then to distillation columns and condensers. The resulting liquid is stored in tanks, transferred to barrels for aging, and/or sent to the bottling area for packaging. Barrels of bourbon are stored in rick houses for aging. The spent grain is sold as distiller's dried grain. Beverage ingredients are received in bulk for blending, and other distilled spirits are received by the facility in bulk and sent to the bottling area for packaging.

Description of Area

☐ Rural Area☐ Industrial Park☐ Residential Area

Is any part of the source located on federal land?

☐ Yes

Number of Employees:

474

Surrounding Approximate distance to nearest residence or commercial

☐ Urban Area☐ Industrial Area☒ Commercial Area☒ NoAdjacent

Property Area:

430 AcresIs this source portable? ☐ Yes ☒ No

What other environmental permits or registrations does this source currently hold or need to obtain in Kentucky?

NPDES/KPDES:

☒ Currently Hold☐ Need☐ N/A

Solid Waste:

☐ Currently Hold☐ Need☒ N/A

RCRA:

☐ Currently Hold☐ Need☒ N/A

UST:

☐ Currently Hold☐ Need☒ N/A

Type of Regulated Waste Activity:

☐ Mixed Waste Generator☒ Generator☐ Recycler☐ Other: _____☐ U.S. Importer of Hazardous Waste☐ Transporter☐ Treatment/Storage/Disposal Facility☐ N/A

Section AI.2: Applicant Information			
Applicant Name: <u>Buffalo Trace Distillery</u>			
Title: (if individual) _____			
Mailing Address: Street or P.O. Box: <u>113 Great Buffalo Trace</u>			
City: <u>Frankfort</u> State: <u>KY</u> Zip Code: <u>40601</u>			
Email: (if individual) _____			
Phone: <u>(502) 223-7641</u>			
Technical Contact			
Name: <u>Andrew Leet</u>			
Title: <u>Environmental Engineer</u>			
Mailing Address: Street or P.O. Box: <u>113 Great Buffalo Trace</u>			
City: <u>Frankfort</u> State: <u>KY</u> Zip Code: <u>40601</u>			
Email: <u>aleet@buffalotrace.com</u>			
Phone: <u>(859) 705-8187</u>			
Air Permit Contact for Source			
Name: <u>Andrew Leet</u>			
Title: <u>Environmental Engineer</u>			
Mailing Address: Street or P.O. Box: <u>113 Great Buffalo Trace</u>			
City: <u>Frankfort</u> State: <u>KY</u> Zip Code: <u>40601</u>			
Email: <u>aleet@buffalotrace.com</u>			
Phone: <u>(859) 705-8187</u>			

Section AI.3: Owner Information☒ **Owner same as applicant**

Name: _____

Title: _____

Mailing Address: **Street or P.O. Box:** _____

City: _____ **State:** _____ **Zip Code:** _____

Email: _____

Phone: _____

List names of owners and officers of the company who have an interest in the company of 5% or more.

Name**Position**

Wholly-owned subsidiary of the Sazerac Company; New Orleans, LA

Section AI.4: Type of Application

Current Status:	<input checked="" type="checkbox"/> Title V	<input type="checkbox"/> Conditional Major	<input type="checkbox"/> State-Origin	<input type="checkbox"/> General Permit	<input type="checkbox"/> Registration	<input type="checkbox"/> None
	<input type="checkbox"/> Name Change	<input type="checkbox"/> Initial Registration	<input type="checkbox"/> Significant Revision	<input type="checkbox"/> Administrative Permit Amendment		
Requested Action: (check all that apply)	<input checked="" type="checkbox"/> Renewal Permit	<input type="checkbox"/> Revised Registration	<input type="checkbox"/> Minor Revision	<input type="checkbox"/> Initial Source-wide Operating Permit		
	<input type="checkbox"/> 502(b)(10) Change	<input type="checkbox"/> Extension Request	<input type="checkbox"/> Addition of New Facility	<input type="checkbox"/> Portable Plant Relocation Notice		
	<input type="checkbox"/> Revision	<input type="checkbox"/> Off Permit Change	<input type="checkbox"/> Landfill Alternate Compliance Submitt	<input type="checkbox"/> Modification of Existing Facilities		
	<input type="checkbox"/> Ownership Change	<input type="checkbox"/> Closure				
Requested Status:	<input checked="" type="checkbox"/> Title V	<input type="checkbox"/> Conditional Major	<input type="checkbox"/> State-Origin	<input type="checkbox"/> PSD	<input type="checkbox"/> NSR	<input type="checkbox"/> Other: _____

Is the source requesting a limitation of potential emissions?		<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Pollutant:	Requested Limit:	Pollutant:	Requested Limit:
<input type="checkbox"/> Particulate Matter	_____	<input type="checkbox"/> Single HAP	_____
<input type="checkbox"/> Volatile Organic Compounds (VOC)	_____	<input type="checkbox"/> Combined HAPs	_____
<input type="checkbox"/> Carbon Monoxide	_____	<input type="checkbox"/> Air Toxics (40 CFR 68, Subpart F)	_____
<input type="checkbox"/> Nitrogen Oxides	_____	<input type="checkbox"/> Carbon Dioxide	_____
<input type="checkbox"/> Sulfur Dioxide	_____	<input type="checkbox"/> Greenhouse Gases (GHG)	_____
<input type="checkbox"/> Lead	_____	<input type="checkbox"/> Other	_____

For New Construction:

Proposed Start Date of Construction:
(MM/YYYY) _____

Proposed Operation Start-Up Date:
(MM/YYYY) _____

For Modifications:

Proposed Start Date of Modification:
(MM/YYYY) _____

Proposed Operation Start-Up Date:
(MM/YYYY) _____

Applicant is seeking coverage under a permit shield.

☐ Yes

☒ No

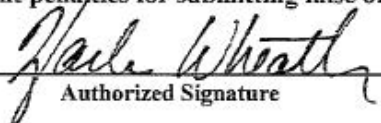
Identify any non-applicable requirements for which permit shield is sought on a separate attachment to the application.

Section AI.5 Other Required Information**Indicate the documents attached as part of this application:**

- | | |
|--|--|
| <input type="checkbox"/> DEP7007A Indirect Heat Exchangers and Turbines | <input type="checkbox"/> DEP7007CC Compliance Certification |
| <input type="checkbox"/> DEP7007B Manufacturing or Processing Operations | <input type="checkbox"/> DEP7007DD Insignificant Activities |
| <input type="checkbox"/> DEP7007C Incinerators and Waste Burners | <input checked="" type="checkbox"/> DEP7007EE Internal Combustion Engines |
| <input type="checkbox"/> DEP7007F Episode Standby Plan | <input type="checkbox"/> DEP7007FF Secondary Aluminum Processing |
| <input type="checkbox"/> DEP7007J Volatile Liquid Storage | <input type="checkbox"/> DEP7007GG Control Equipment |
| <input type="checkbox"/> DEP7007K Surface Coating or Printing Operations | <input type="checkbox"/> DEP7007HH Haul Roads |
| <input type="checkbox"/> DEP7007L Mineral Processes | <input type="checkbox"/> Confidentiality Claim |
| <input type="checkbox"/> DEP7007M Metal Cleaning Degreasers | <input type="checkbox"/> Ownership Change Form |
| <input checked="" type="checkbox"/> DEP7007N Source Emissions Profile | <input type="checkbox"/> Secretary of State Certificate |
| <input type="checkbox"/> DEP7007P Perchloroethylene Dry Cleaning Systems | <input type="checkbox"/> Flowcharts or diagrams depicting process |
| <input type="checkbox"/> DEP7007R Emission Offset Credit | <input type="checkbox"/> Digital Line Graphs (DLG) files of buildings, roads, etc. |
| <input type="checkbox"/> DEP7007S Service Stations | <input type="checkbox"/> Site Map |
| <input type="checkbox"/> DEP7007T Metal Plating and Surface Treatment Operations | <input type="checkbox"/> Map or drawing depicting location of facility |
| <input checked="" type="checkbox"/> DEP7007V Applicable Requirements and Compliance Activities | <input type="checkbox"/> Safety Data Sheet (SDS) |
| <input type="checkbox"/> DEP7007Y Good Engineering Practice and Stack Height Determination | <input type="checkbox"/> Emergency Response Plan |
| <input type="checkbox"/> DEP7007AA Compliance Schedule for Non-complying Emission Units | <input type="checkbox"/> Other: _____ |
| <input type="checkbox"/> DEP7007BB Certified Progress Report | |

Section AI.6: Signature Block

I, the undersigned, hereby certify under penalty of law, that I am a responsible official*, and that I have personally examined, and am familiar with, the information submitted in this document and all its attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the information is on knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false or incomplete information, including the possibility of fine or imprisonment.



 Authorized Signature

Harlen Wheatley

 Type or Printed Name of Signatory

10/4/2019

 Date

Master Distiller

 Title of Signatory

*Responsible official as defined by 401 KAR 52:001.

Section AI.7: Notes, Comments, and Explanations	

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007EE**Internal Combustion Engines**

- ☐ Section EE.1: General Information
☐ Section EE.2: Operating Information
☐ Section EE.3: Design Information
☐ Section EE.4: Fuel Information
☐ Section EE.5: Emission Factor Information
☐ Section EE.6: Notes, Comments, and Explanations

Additional Documentation

☐ Complete DEP7007AI, DEP7007N,
DEP7007V, and DEP7007GG

☐ Attach EPA certification of the engine

Source Name: [Buffalo Trace Distillery, Inc.](#)

KY EIS (AFS) #: [21-073-00009](#)

Permit #: [V-12-056](#)

Agency Interest (AI) ID: [1373](#)

Date: [10/4/2019](#)

Section EE.1: General Information

Emission Unit #	Emission Unit Name	Control Device ID	Stack ID	Manufacturer	Model Number	Model Year	Date of Manufacture	Proposed/Actual Date of Construction Commencement (MM/YYYY)	Date Reconstructed/Modified	List Applicable Regulations
18_001	Emergency Generator Engine G001	na	S18A	Generac	SG070	2007	9/24/2007	2007	na	40 CFR 60 Subpart JJJJ (Gap Engine)
18_002	Emergency Generator Engine G002	na	S18B	Cummins	75GGHF	2006	5/1/2006	2006	na	40 CFR 63 Subpart ZZZZ (Existing Engine)

Section EE.2: Operating Information

Emission Unit #	Engine Purpose (Identify if Non-Emergency, Emergency, Fire/Water Pump, Black-start engine for combustion turbine, Engine Testing)	Hours Operated	Is this engine a rental? <i>(Yes/No)</i>	Rental Time Period <i>(hrs)</i>	Alternate Operating Scenarios (Describe any operating scenarios in which the engine may be used in a different configuration)
18_001	Emergency	500	No	na	
18_002	Emergency	500	No	na	

Section EE.3: Design Information

Emission Unit #	Engine Type (Identify all that apply: Commercial, Institutional, Stationary, Non-Road)	Ignition Type (Identify if either Compression or Spark Ignition)	Engine Family (Identify all that apply: 2-stroke, 4-stroke, Rich Burn, Lean Burn)	Maximum Engine Power (bhp)	Maximum Engine Speed (rpm)	Total Displacement (L)	Number of Cylinders
18_001	Stationary	Spark Ignition	4-Stroke, Lean Burn	107	1,800	7	10
18_002	Stationary	Spark Ignition	4-Stroke, Lean Burn	126	1,800	7	10

Section EE.4: Fuel Information

Emission Unit #	Identify if Primary, Secondary, or Tertiary Fuel	Fuel Type (Identify if Diesel, Gasoline, Natural Gas, Liquefied Petroleum Gas (LPG), Landfill/Digester Gas, or Other)	Fuel Grade	Percent Time Used (%)	Maximum Fuel Consumption	Heat Content	Sulfur Content (%)	SCC Code	SCC Units
18_001	Primary	Natural Gas	na	100	1,009 scf/hr	1020 Btu/scf	Neg.	20200202	MMcf NG Burned
18_002	Primary	Natural Gas	na	100	1,017 scf/hr	1020 Btu/scf	Neg.	20200202	MMcf NG Burned

Section EE.5: Emission Factor Information

Emission factors expressed here are based on the potential to emit.

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor Units	Source of Emission Factor
18_001	Primary	PM/PM10/PM2.5	10.2	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_001	Primary	NOx	4,162	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_001	Primary	SO2	0.60	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_001	Primary	VOC	120	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_001	Primary	CO	323	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_001	Primary	CO2	119,317	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-1
18_001	Primary	N2O	0.22	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-2
18_001	Primary	CH4	2.25	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-2
18_001	Primary	Formaldehyde	53.9	lb/MMcf NG Burned	AP-42 Table 3.2-2
18_001	Primary	Ammonia	18.0	lb/MMcf NG Burned	SCAQMD Document, 12/2016
18_001	Primary	Lead	5.00E-04	lb/MMcf NG Burned	AP-42 Table 1.4-2
18_002	Primary	PM/PM10/PM2.5	10.2	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_002	Primary	NOx	4,162	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_002	Primary	SO2	0.60	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_002	Primary	VOC	120	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000

Emission Unit #	Fuel	Pollutant	Emission Factor	Emission Factor	Source of Emission Factor
18_002	Primary	CO	323	lb/MMcf NG Burned	AP-42 Table 3.2-2, 07/2000
18_002	Primary	CO2	119,317	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-1
18_002	Primary	N2O	0.22	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-2
18_002	Primary	CH4	2.25	lb/MMcf NG Burned	40 CFR 98, Subpart C, Table C-2
18_002	Primary	Formaldehyde	53.9	lb/MMcf NG Burned	AP-42 Table 3.2-2
18_002	Primary	Ammonia	18.0	lb/MMcf NG Burned	SCAQMD Document, 12/2016
18_002	Primary	Lead	5.00E-04	lb/MMcf NG Burned	AP-42 Table 1.4-2

Section EE.6: Notes, Comments, and Explanations

<p style="text-align: center;">Division for Air Quality</p> <p style="text-align: center;">300 Sower Boulevard Frankfort, KY 40601 (502) 564-3999</p>	<h2 style="margin: 0;">DEP7007N</h2> <h3 style="margin: 0;">Source Emissions Profile</h3> <p> <input type="checkbox"/> Section N.1: Emission Summary <input type="checkbox"/> Section N.2: Stack Information <input type="checkbox"/> Section N.3: Fugitive Information <input type="checkbox"/> Section N.4: Notes, Comments, and Explanations </p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: center;">Additional Documentation</th> </tr> <tr> <td style="padding: 5px;"> <input type="checkbox"/> Complete DEP7007AI </td> </tr> </table>	Additional Documentation	<input type="checkbox"/> Complete DEP7007AI
Additional Documentation				
<input type="checkbox"/> Complete DEP7007AI				

Source Name:	Buffalo Trace Distillery, Inc.
KY EIS (AFS) #:	21-073-00009
Permit #:	V-12-056
Agency Interest (AI) ID:	1373
Date:	10/4/2019

N.1: Emission Summary																
Emission Unit #	Emission Unit Name	Process ID	Process Name	Control Device Name	Control Device ID	Stack ID	Maximum Design Capacity (SCC Units/hour)	Pollutant	Uncontrolled Emission Factor (lb/SCC Units)	Emission Factor Source (e.g. AP-42, Stack Test, Mass Balance)	Capture Efficiency (%)	Control Efficiency (%)	Hourly Emissions		Annual Emissions	
													Uncontrolled Potential (lb/hr)	Controlled Potential (lb/hr)	Uncontrolled Potential (tons/yr)	Controlled Potential (tons/yr)
18_001	Emergency Generator Engine G001	1	Natural Gas Combustion	na	na	S18A	1.009E-03	PM/PM10/PM2.5	10.2	AP-42 Table 3.2-2, 07/2000	na	na	0.01	na	0.003	na
								NOx	4,162	AP-42 Table 3.2-2, 07/2000	na	na	4.20	na	1.05	na
								SO2	0.60	AP-42 Table 3.2-2, 07/2000	na	na	0.001	na	0.0002	na
								VOC	120	AP-42 Table 3.2-2, 07/2000	na	na	0.12	na	0.03	na
								CO	323	AP-42 Table 3.2-2, 07/2000	na	na	0.33	na	0.08	na
								CO2	119,317	40 CFR 98, Subpart C, Table C-1	na	na	120.39	na	30.10	na
								N2O	0.22	40 CFR 98, Subpart C, Table C-2	na	na	2.27E-04	na	5.67E-05	na
								CH4	2.25	40 CFR 98, Subpart C, Table C-2	na	na	0.002	na	0.001	na
								Formaldehyde	53.9	AP-42 Table 3.2-2	na	na	0.05	na	0.01	na
								Ammonia	18.0	SCAQMD Document, 12/2016	na	na	0.02	na	0.005	na
								Lead	5.00E-04	AP-42 Table 1.4-2	na	na	5.05E-07	na	1.26E-07	na

18_002	Emergency Generator Engine G002	1	Natural Gas Combustion	na	na	S18B	1.017E-03	PM/PM10/PM2.5	10.2	AP-42 Table 3.2-2, 07/2000	na	na	0.01	na	0.003	na
								NOx	4,162	AP-42 Table 3.2-2, 07/2000	na	na	4.23	na	1.06	na
								SO2	0.60	AP-42 Table 3.2-2, 07/2000	na	na	0.001	na	0.0002	na
								VOC	120	AP-42 Table 3.2-2, 07/2000	na	na	0.12	na	0.03	na
								CO	323	AP-42 Table 3.2-2, 07/2000	na	na	0.33	na	0.08	na
								CO2	119,317	40 CFR 98, Subpart C, Table C-1	na	na	121.36	na	30.34	na
								N2O	0.22	40 CFR 98, Subpart C, Table C-2	na	na	2.29E-04	na	5.72E-05	na
								CH4	2.25	40 CFR 98, Subpart C, Table C-2	na	na	0.002	na	0.001	na
								Formaldehyde	53.9	AP-42 Table 3.2-2	na	na	0.05	na	0.01	na
								Ammonia	18.0	SCAQMD Document, 12/2016	na	na	0.02	na	0.005	na
								Lead	5.00E-04	AP-42 Table 1.4-2	na	na	5.09E-07	na	1.27E-07	na

Section N.2: Stack Information
UTM Zone: 16

Stack ID	Identify all Emission Units (with Process ID) and Control Devices that Feed to Stack	Stack Physical Data			Stack UTM Coordinates		Stack Gas Stream Data		
		Equivalent Diameter (ft)	Height (ft)	Base Elevation (ft)	Northing (m)	Easting (m)	Flowrate (acfm)	Temperature (°F)	Exit Velocity (ft/sec)
S18A	18_001	0.17	4.7	505	4,231,873	686,300	680	1,250	519
S18B	18_002	0.17	4.7	505	4,231,873	686,300	539	1,233	412

Section N.3: Fugitive Information**UTM Zone:**

Emission Unit #	Emission Unit Name	Process ID	Area Physical Data		Area UTM Coordinates		Area Release Data	
			Length of the X Side <i>(ft)</i>	Length of the Y Side <i>(ft)</i>	Northing <i>(m)</i>	Easting <i>(m)</i>	Release Temperature <i>(°F)</i>	Release Height <i>(ft)</i>
Not Applicable for this Application								

Section N.4: Notes, Comments, and Explanations

The base height and UTM coordinates represent the approximate centerpoint of the Buffalo Trace distillery. G001 is located in the process chiller area; G002 is located near the control room for the distillery.

Manufacturer's information is used for the G001 stack height. G002 is assumed to have a similar stack. Engineering estimates are used for other stack parameters.

The stack location information presented in Section N.2 represents the approximate centerpoint of the facility.

Division for Air Quality

300 Sower Boulevard
Frankfort, KY 40601
(502) 564-3999

DEP7007V**Applicable Requirements and Compliance Activities**

- ☐ Section V.1: Emission and Operating Limitation(s)
☐ Section V.2: Monitoring Requirements
☐ Section V.3: Recordkeeping Requirements
☐ Section V.4: Reporting Requirements
☐ Section V.5: Testing Requirements
☐ Section V.6: Notes, Comments, and Explanations

Additional Documentation

☐ Complete DEP7007AI

Source Name: Buffalo Trace Distillery, Inc.

KY EIS (AFS) #: 21-073-00009

Permit #: V-12-056

Agency Interest (AI) ID: 1373

Date: 10/4/2019

Section V.1: Emission and Operating Limitation(s)

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
18_001	Emergency Generator Engine G001	NESHAP ZZZZ: 40 CFR 63.6590(c)	na	na	na	Because construction commenced after June 12, 2006, G001 is considered to be a new stationary RICE at an area source. Therefore, BTB meets the requirements of NESHAP ZZZZ by complying with NSPS JJJJ.	Comply with NSPS JJJJ requirements.
18_001	Emergency Generator Engine G001	NSPS JJJJ: 40 CFR 60.4230(a)(4)(iv)	na	na	na	G001 was manufactured by Generac in September 2007. 40 CFR 60.4230(a)(4)(iv) specifies that an emergency engine with a maximum engine power greater than 25 HP is subject to the requirements of this subpart only if it is manufactured on or after January 1, 2009. Since G001 was manufactured before January 1, 2009, no specific Subpart JJJJ requirements apply (in spite of the engine being generally subject to this regulation).	Although G001 is generally subject to NSPS JJJJ (and compliance with NESHAP ZZZZ is demonstrated by complying with NSPS JJJJ), no specific NSPS JJJJ requirements apply. Therefore, G001 is considered to be a NSPS JJJJ gap engine.

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
18_001	Emergency Generator Engine G001	NSPS JJJJ: 40 CFR 60.4243(d)	na	na	na	Operate according to the requirements in (d)(1) through (3) to be considered an emergency stationary ICE (i.e., no time limit on emergency operations; up to 100 hours per calendar year of maintenance checks and readiness testing, as part of emergency demand response, and for voltage or frequency deviations; up to 50 hours per calendar year for non-emergency situations.).	To preclude the applicability of federal requirements for non-emergency engines, monitor hours of operation in emergency and non-emergency service and the reason the engine was in operation during that time.
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: 40 CFR 63.6590(a)(1)(iii); 63.6590(c)(1)	na	na	na	Per its nameplate, G002 was built in May 2006 and began operating at BTM on July 18, 2006. NESHAP ZZZZ distinguishes between new and existing units based on whether the unit was installed before or after June 12, 2006. If G002 was installed after June 12, 2006, then it is a gap engine that falls in the same category as G001 and doesn't have specifically applicable requirements under NSPS JJJJ. BTM was not able to identify the actual installation date for G002. As such, because the date the engine became operational at BTM is within 30 days of the applicable engine classification date, BTM has conservatively assumed that G002 is classified as an existing engine and is subject to NESHAP ZZZZ requirements.	Comply with NESHAP ZZZZ requirements.

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: 40 CFR 63.6640(f)	na	na	na	Operate according to the requirements in (f)(1), (2), and (4) to be considered an emergency stationary RICE (i.e., no time limit on emergency operations; up to 100 hours per calendar year of maintenance checks and readiness testing, as part of emergency demand response, and for voltage or frequency deviations; up to 50 hours per calendar year for non-emergency situations.).	Monitor operating hours and reason to demonstrate compliance with these limits.
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: 40 CFR 63.6605(b)	na	na	na	Operate and maintain the engine in a manner consistent with safety and good air pollution control practices for minimizing emissions.	Follow manufacturer's operating instructions.
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: 40 CFR 63.6625(e)	na	na	na	Operate and maintain the unit according to manufacturer's emission-related written instructions or your own maintenance plan.	Follow manufacturer's operating instructions.
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: 40 CFR 63.6625(h)	na	na	na	Minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes.	Follow manufacturer's operating instructions.
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: Table 2d	na	na	na	If the engine is operating for emergency purposes when maintenance is required, perform the required maintenance as soon as practicable after the emergency has ended.	Ensure that operators understand and are trained to comply with this requirement.

Emission Unit #	Emission Unit Description	Applicable Regulation or Requirement	Pollutant	Emission Limit (if applicable)	Voluntary Emission Limit or Exemption (if applicable)	Operating Requirement or Limitation (if applicable)	Method of Determining Compliance with the Emission and Operating Requirement(s)
18_002	Emergency Generator Engine G002	NESHAP ZZZZ: Table 2d & 40 CFR 63.6625(j)	na	na	na	(a) Change oil and filter every 500 hours of operation or annually, whichever comes first, or implement the optional oil analysis program to extend the oil change requirement; (b) Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and (c) Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	Complete and document required maintenance.

Section V.2: Monitoring Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Monitored	Description of Monitoring
18_001	Emergency Generator Engine G001	na	na	Operating Hours	To preclude the applicability of federal requirements for non-emergency engines, BTD will use a non-resettable hour meter to monitor G001's operating time to demonstrate that it qualifies as an emergency engine. (Note: the non-resettable operating hour meter requirement of 40 CFR 60.4237(c) does not apply to G001 based on its rated capacity and build date).
18_002	Emergency Generator Engine G002	na	NESHAP ZZZZ: 40 CFR 63.6625(f)	Operating Hours	Install a non-resettable hour meter to monitor G002's operating time.

Section V.3: Recordkeeping Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Recorded	Description of Recordkeeping
18_001	Emergency Generator Engine G001	na	na	Operating Hours	To preclude the applicability of federal requirements for non-emergency engines, BTD will record G001's annual operating hours and the purpose of operation to demonstrate that it qualifies as an emergency engine.
18_002	Emergency Generator Engine G002	na	NESHAP ZZZZ: 40 CFR 63.6655(f)	Operating Hours	Maintain records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. Record the time of operation of the engine and the reason the engine was in operation during that time.
18_002	Emergency Generator Engine G002	na	NESHAP ZZZZ: 40 CFR 63.6655(e)	Maintenance Conducted	Keep records of the maintenance conducted on G002 in order to demonstrate that you operated and maintained the engine according to manufacturer's emission-related written instructions or BTD's maintenance plan.

Section V.4: Reporting Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Reported	Description of Reporting
na	na	na	na	na	na

Section V.5: Testing Requirements

Emission Unit #	Emission Unit Description	Pollutant	Applicable Regulation or Requirement	Parameter Tested	Description of Testing
na	na	na	na	na	na

Section V.6: Notes, Comments, and Explanations

ATTACHMENT B

Emission Calculations

B-1. Emissions Associated with Generac SG070 Generator Engine (G001)

B-1.1 Generator Power and Fuel Consumption Data

- > Pertinent data on engine power and fuel usage taken from the technical data sheet and statement of exhaust for the Generac SG070 generator.

Engine Output in hp (100% load, standby):	107.0 bhp
Generator Output in kW (100% load, standby):	70.0 kW
Fuel Consumption Rate in scf/hr (100% load, standby):	1,009.0 scf/hr
Annual Operating Hours:	500 hrs
Heat Content of Natural Gas (HHV):	1,020 Btu/scf

B-1.2 Source Classification Code

- > Emissions are tied to the SCC code for natural gas fueled engines listed below.

SCC:	20200202
SCC Description:	Internal Combustion Engines, Industrial (2-02), Natural Gas (2-02-002), Reciprocating (2-02-002-02)
SCC Units:	Million Cubic Feet Natural Gas Burned

B-1.3 Rich/Lean Burn Engine Determination

- > Emissions for natural gas/propane-fired engines are directly linked to the air-to-fuel ratio and as such, emission factors in AP-42 are delineated into separate tables for rich and lean burn engines. The air-to-fuel ratio is calculated below to determine which of these emission factor sets are more appropriate.

	Value	Units	Basis
Combustion Air in cfh:	12,780	cfh	Manufacturer Specification Sheet
Density of Air in lb/cf:	0.076	lb/cf	At sea level at 15 C (60 F)
Fuel consumption rate in cfh (100% load):	1,009.0	cfh	Manufacturer Specification Sheet
Density of Natural Gas in lb/cf:	0.042	lb/cf	AP-42 Appendix A, Misc. Data and Conversion Factors
Operating Air-to-Fuel Ratio (AFR):	22.91	--	$= (12,780 \text{ cfh} * 0.076 \text{ lb/cf}) / (1,009.0 \text{ cfh} * 0.042 \text{ lb/cf})$
Stoichiometric AFR:	14.50	--	John B. Heywood: "Internal Combustion Engine Fundamentals page 915", 1988
AFR Ratio:	1.58	--	$= (22.91 / 14.50)$

- > According to 40 CFR 60.4248, rich-burn engines are defined as any four-stroke spark ignited engine where the operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Lean-burn engines are defined as any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine. Therefore, the engine integral to this generator set is classified as a lean-burn engine when combusting natural gas fuel and the emission factors for AP-42 Table 3.2-2 apply.

B-1.4 Emission Calculation Methodology and Emission Factors

- > Emission factors are from AP-42 Section 3.2 (7/2000) Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines. Conservatively over-estimating PM by assuming PM is equal to PM10/PM2.5.

B-1.4.1 NOX

Emission factor for NOX:	4.08 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
NOX emission factor in terms of SCC units:	4,161.60 lb/MMscf	$= 4.08 \text{ lb/MMBtu} * 1020 \text{ Btu/scf}$

B-1.4.2 CO

Emission factor for CO:	0.32 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
CO emission factor in terms of SCC units:	323.34 lb/MMscf	$= 0.32 \text{ lb/MMBtu} * 1020 \text{ Btu/scf}$

B-1.4.3 VOC

Emission factor for VOC:	0.12 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
VOC emission factor in terms of SCC units:	120.36 lb/MMscf	$= 0.12 \text{ lb/MMBtu} * 1020 \text{ Btu/scf}$

B-1.4.4 PM/PM10/PM2.5

Emission factor for PM:	9.99E-03 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
PM emission factor in terms of SCC units:	10.19 lb/MMscf	$= 9.99\text{E-}03 \text{ lb/MMBtu} * 1020 \text{ Btu/scf}$

B-1.4.5 SO2

Emission factor for SO2:	5.88E-04 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
SO2 emission factor in terms of SCC units:	0.60 lb/MMscf	$= 5.88\text{E-}04 \text{ lb/MMBtu} * 1020 \text{ Btu/scf}$

B-1.4.6 HAP Emission Estimates

- > Formaldehyde emission factor is from AP-42 Section 3.2 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines, ammonia emission factor is from South Coast Air Quality Management District (SCAQMD) *Reporting Procedures for AB2588 Facilities for Reporting Their Quadrennial Air Toxics Emissions Inventory* from 12/2016, and lead is from AP-42 Section 1.4 Table 1.4-2.

	CAS #	HAP?	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMscf)	Emission Factor Basis
Formaldehyde	50-00-0	Y	0.053	53.86	AP-42 Table 3.2-2
Ammonia	7664-41-7	N	0.018	18.00	SCAQMD Document, 12/2016
Lead	7439-92-1	Y	4.90E-07	5.00E-04	AP-42 Table 1.4-2

B-1.4.7 GHG Emission Factors

- > CO₂, CH₄ and N₂O emissions for natural gas combustion are estimated using the natural gas emission factors published in 40 CFR 98, Subpart C, Table C-1 and C-2.

Global Warming Potentials of GHGs per 40 CFR 98 Subpart A, Table A-1.

CO ₂	1
CH ₄	25
N ₂ O	298

CO ₂ Emission Factor	53.06 kg CO ₂ /MMBtu	40 CFR 98, Subpart C, Table C-1; Natural Gas (weighted U.S. average)
CH ₄ Emission Factor	1.0E-03 kg CH ₄ /MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas
N ₂ O Emission Factor	1.0E-04 kg N ₂ O/MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas

Pollutant	Emission Factor (kg/MMBtu)	Equivalent Factor (lb/MMscf)
CO ₂	53.06	119,317
CH ₄	1.00E-03	2.25
N ₂ O	1.00E-04	0.22
CO ₂ e	53.11	119,440

B-1.5 Summary of Engine Potential Emissions

Pollutant	Emission Factor (lb/MMscf)	Basis	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NOX	4,161.60	AP-42 Table 3.2-2, 07/2000	4.20	1.05
CO	323.34	AP-42 Table 3.2-2, 07/2000	0.33	0.082
VOC	120.36	AP-42 Table 3.2-2, 07/2000	0.12	0.030
PM/PM10/PM2.5	10.19	AP-42 Table 3.2-2, 07/2000	1.03E-02	2.57E-03
SO ₂	0.60	AP-42 Table 3.2-2, 07/2000	6.05E-04	1.51E-04
Formaldehyde	53.86	AP-42 Table 3.2-2	0.054	0.014
Ammonia	18.00	SCAQMD Document, 12/2016	0.018	4.54E-03
Lead	5.00E-04	AP-42 Table 1.4-2	5.05E-07	1.26E-07
CO ₂	119,317	40 CFR 98, Subpart C, Table C-1	120.39	30.10
CH ₄	2.25	40 CFR 98, Subpart C, Table C-2	2.27E-03	5.67E-04
N ₂ O	0.22	40 CFR 98, Subpart C, Table C-2	2.27E-04	5.67E-05
CO ₂ e	119,440	40 CFR 98, Subpart C	120.52	30.13

B-2. Emissions Associated with Cummins 75GGHF Generator Engine (G002)

B-2.1 Generator Power and Fuel Consumption Data

> Pertinent data on engine power and fuel usage taken from the technical data sheet and statement of exhaust for the Cummins 75GGHF generator.

Engine Output in hp (100% load, standby):	126.0 bhp
Generator Output in kW (100% load, standby):	70.0 kW
Fuel Consumption Rate in scf/hr (100% load, standby):	928.3 scf/hr
Annual Operating Hours:	500 hrs
Heat Content of Natural Gas (HHV):	1,020 Btu/scf

B-2.2 Source Classification Code

> Emissions are tied to the SCC code for natural gas fueled engines listed below.

SCC:	20200202
SCC Description:	Internal Combustion Engines, Industrial (2-02), Natural Gas (2-02-002), Reciprocating (2-02-002-02)
SCC Units:	Million Cubic Feet Natural Gas Burned

B-2.3 Rich/Lean Burn Engine Determination

> Emissions for natural gas/propane-fired engines are directly linked to the air-to-fuel ratio and as such, emission factors in AP-42 are delineated into separate tables for rich and lean burn engines. The air-to-fuel ratio is calculated below to determine which of these emission factor sets are more appropriate.

	Value	Units	Basis
Operating Air-to-Fuel Ratio (AFR):	16.20	--	Manufacturer Specification Sheet
Stoichiometric AFR:	14.50	--	John B. Heywood: "Internal Combustion Engine Fundamentals page 915", 1988
AFR Ratio:	1.12	--	= (16.20 / 14.50)

> According to 40 CFR 60.4248, rich-burn engines are defined as any four-stroke spark ignited engine where the operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Lean-burn engines are defined as any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine. Therefore, the engine integral to this generator set is classified as a lean-burn engine when combusting natural gas fuel and the emission factors for AP-42 Table 3.2-2 apply.

B-2.4 Emission Calculation Methodology and Emission Factors

> Emission factors are from AP-42 Section 3.2 (7/2000) Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines. Conservatively over-estimating PM by assuming PM is equal to PM10/PM2.5.

B-2.4.1 NOX

Emission factor for NOX:	4.08 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
NOX emission factor in terms of SCC units:	4,161.60 lb/MMscf	= 4.08 lb/MMBtu * 1020 Btu/scf

B-2.4.2 CO

Emission factor for CO:	0.32 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
CO emission factor in terms of SCC units:	323.34 lb/MMscf	= 0.32 lb/MMBtu * 1020 Btu/scf

B-2.4.3 VOC

Emission factor for VOC:	0.12 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
VOC emission factor in terms of SCC units:	120.36 lb/MMscf	= 0.12 lb/MMBtu * 1020 Btu/scf

B-2.4.4 PM/PM10/PM2.5

Emission factor for PM:	9.99E-03 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
PM emission factor in terms of SCC units:	10.19 lb/MMscf	= 9.99E-03 lb/MMBtu * 1020 Btu/scf

B-2.4.5 SO2

Emission factor for SO2:	5.88E-04 lb/MMBtu	AP-42 Table 3.2-2, 07/2000
SO2 emission factor in terms of SCC units:	0.60 lb/MMscf	= 5.88E-04 lb/MMBtu * 1020 Btu/scf

B-2.4.6 HAP Emission Estimates

- > Formaldehyde emission factor is from AP-42 Section 3.2 Table 3.2-2 Uncontrolled Emission Factors for 4-Stroke Lean-Burn Engines, ammonia emission factor is from South Coast Air Quality Management District (SCAQMD) *Reporting Procedures for AB2588 Facilities for Reporting Their Quadrennial Air Toxics Emissions Inventory* from 12/2016, and lead is from AP-42 Section 1.4 Table 1.4-2.

	CAS #	HAP?	Emission Factor (lb/MMBtu)	Emission Factor (lb/MMscf)	Emission Factor Basis
Formaldehyde	50-00-0	Y	0.053	53.86	AP-42 Table 3.2-2
Ammonia	7664-41-7	N	0.018	18.00	SCAQMD Document, 12/2016
Lead	7439-92-1	Y	4.90E-07	5.00E-04	AP-42 Table 1.4-2

B-2.4.7 GHG Emission Factors

- > CO₂, CH₄ and N₂O emissions for natural gas combustion are estimated using the natural gas emission factors published in 40 CFR 98, Subpart C, Table C-1 and C-2.

Global Warming Potentials of GHGs per 40 CFR 98 Subpart A, Table A-1.

CO ₂	1
CH ₄	25
N ₂ O	298

CO ₂ Emission Factor	53.06 kg CO ₂ /MMBtu	40 CFR 98, Subpart C, Table C-1; Natural Gas (weighted U.S. average)
CH ₄ Emission Factor	1.0E-03 kg CH ₄ /MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas
N ₂ O Emission Factor	1.0E-04 kg N ₂ O/MMBtu	40 CFR 98, Subpart C, Table C-2; Natural Gas

Pollutant	Emission Factor (kg/MMBtu)	Equivalent Factor (lb/MMscf)
CO ₂	53.06	119,317
CH ₄	1.00E-03	2.25
N ₂ O	1.00E-04	0.22
CO ₂ e	53.11	119,440

B-2.5 Summary of Engine Potential Emissions

Pollutant	Emission Factor (lb/MMscf)	Basis	Hourly Emissions (lb/hr)	Annual Emissions (tpy)
NOX	4,161.60	AP-42 Table 3.2-2, 07/2000	3.86	0.97
CO	323.34	AP-42 Table 3.2-2, 07/2000	0.30	0.075
VOC	120.36	AP-42 Table 3.2-2, 07/2000	0.11	0.028
PM/PM10/PM2.5	10.19	AP-42 Table 3.2-2, 07/2000	9.46E-03	2.36E-03
SO ₂	0.60	AP-42 Table 3.2-2, 07/2000	5.57E-04	1.39E-04
Formaldehyde	53.86	AP-42 Table 3.2-2	0.050	0.012
Ammonia	18.00	SCAQMD Document, 12/2016	0.017	4.18E-03
Lead	5.00E-04	AP-42 Table 1.4-2	4.64E-07	1.16E-07
CO ₂	119,317	40 CFR 98, Subpart C, Table C-1	110.76	27.69
CH ₄	2.25	40 CFR 98, Subpart C, Table C-2	2.09E-03	5.22E-04
N ₂ O	0.22	40 CFR 98, Subpart C, Table C-2	2.09E-04	5.22E-05
CO ₂ e	119,440	40 CFR 98, Subpart C	110.88	27.72